

Office Action Summary

Application No.

10/587,903

Applicant(s)

MCNICHOL ET AL.

Examiner

AMENE S. BAYOU

Art Unit

3746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2009.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-52 is/are pending in the application.
4a) Of the above claim(s) 1-20, 26 and 28 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 21-25, 27 and 29-52 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 28 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date: 03/23/09
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 21-25,27,29-31 are rejected under 35 U.S.C 103(a) as being unpatentable over Warren (US patent number 1616774) in view of Danielsson (US patent number 5984642).

3. In re claim 21, Warren discloses a pumping mechanism including:

- A piston type pumping apparatus configured for pumping a liquid, in figure 1 comprising: a vertically oriented cylinder (22) having a top and bottom; a first passageway (29) for hydraulic fluid adjacent to the bottom of the vertically oriented cylinder (22); a second passageway (30) for the hydraulic fluid adjacent to the top of the vertically oriented cylinder (22); a piston (23) reciprocatingly mounted within the vertically oriented cylinder (22) having a top area against which the hydraulic fluid acts in a direction of movement of the piston and a bottom area against which the hydraulic fluid acts in the direction of movement of the piston (23); a hollow piston rod (24) connected to the piston (23) and mounted within the vertically oriented cylinder (22), wherein the hollow piston rod (24) comprises a first one-way valve (27); a transfer chamber (43) located above

the vertically oriented cylinder (22) such that a top portion of the hollow piston rod (24) extends reciprocatingly and sealingly through a first aperture in the top of the vertically oriented cylinder and into the transfer chamber (43) , wherein the first one-way valve (27) is positioned to allow fluid flow from the hollow piston rod (24) into the transfer chamber (43); a discharge chamber (inside of 45) located above and in fluid communication with the transfer chamber (43) , wherein the discharge chamber and the transfer chamber (43) are connected by a third one-way valve (44) configured to allow fluid flow from the transfer chamber (43) into the discharge chamber; a reload chamber (11) located below the vertically oriented cylinder (22) such that a bottom portion of the hollow piston rod (24) extends reciprocatingly and sealingly through a second aperture in the bottom of the vertically oriented cylinder (22) and into the reload chamber (11) , wherein fluid in the reload chamber (11) may flow into the bottom portion of the hollow piston rod (24) ; and -a second one-way valve (14) located in the reload chamber (11) , wherein the second one-way valve (14) is positioned to allow fluid flow into the reload chamber (11) from outside the piston type pumping apparatus (via inlet 12). Waren, however fails to disclose the following limitation which is taught by Danielsson:

- An inside diameter of the cylinder (1) is greater than an inside diameter of the reload chamber (3) and wherein the transfer chamber (4) is sealingly (via seal 19) attached to the cylinder (1) at a location spaced apart from the first aperture (the aperture through which piston rod (10) is reciprocating), in figure 1.

4. It would have been obvious to one skilled in the art to modify the pumping system of Warren by making the reload chamber inside diameter smaller than the diameter of the cylinder in which the piston reciprocates a taught by Danielsson in order to control the volume flow rate of the fluid being pumped.

5. In re claim 22, Warren in view of Danielsson as applied to claim 21 discloses the claimed invention:

Warren discloses:

- The piston (23) is annular in shape, in figure 1.

6. In re claim 23, Warren in view of Danielsson as applied to claim 21 discloses the claimed invention:

Warren discloses:

- The first one-way valve (27) includes a first valve member (ball), a first valve seat and a first valve passageway, the second one-way valve (44) includes a second valve member (ball), a second valve seat and a second valve passageway, and the third one-way valve (14) includes a third valve member (ball), a third valve seat and a third valve passageway, in figure 1.

7. In re claim 24, Warren in view of Danielsson as applied to claim 21 discloses the claimed invention:

Warren discloses:

- The hollow piston rod (24) is cylindrical in shape, in figure 1.

8. In re claim 25, Warren in view of Danielsson as applied to claim 21 discloses the claimed invention:

Warren discloses:

- The reload chamber (11) is sealingly attached to the cylinder (22) apart from the first aperture, in figure 1.

9. In re claim 27, Warren in view of Danielsson as applied to claim 21 discloses the claimed invention:

Warren discloses:

- The discharge chamber (inside of 45) is sealingly attached to the transfer chamber (43) apart from the third one-way valve (44), in figure 1.

10. In re claim 29, Warren in view of Danielsson as applied to claim 21 discloses the claimed invention:

Danielsson discloses:

- An inside diameter of the cylinder (1) greater than an inside diameter of the transfer chamber (3) diameter, in figure 1. See obviousness in claim 21 above.

11. In re claim 30, Warren in view of Danielsson as applied to claim 21 discloses the claimed invention:

Warren discloses:

- The hollow piston rod (24) diameter is equal to or less than the transfer chamber (43) diameter, in figure 1.

12. In re claim 31, Warren in view of Danielsson as applied to claim 21 discloses the claimed invention:

Warren discloses:

- A pump connected to the first passageway for pumping the hydraulic fluid into the vertically oriented cylinder, in page 8, column 2, and lines 93-99.

13. Claims 32-33, 35-41 are rejected under 35 U.S.C 103(a) as being unpatentable over Warren in view of Danielsson as applied to claim 31 further in view of Sweeney (US patent number 6193476).

14. In re claim 32 Warren in view of Danielsson discloses all the limitations except the following limitation which is taught by Sweeney:

- The pump (30) is a piston-type pump, in figure 1.

15. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the pumping system of Warren and Danielsson by choosing a piston pump as taught by Sweeney in order to use the same hydraulic fluid for the whole apparatus.

16. In re claim 33 Warren in view of Danielsson and Sweeney as applied to claim 32 disclose the claimed invention:

Sweeney discloses:

- The pump (30) is located above the second passageway (connecting stroke piston chamber 29 to cylinder 47), in figure 1. It would have been obvious to one skilled in the art to place the pump above the second passageway because the arrangement will give facilitated fluid flow because of gravitational effect.

17. In re claim 35 -41, Warren in view of Danielsson and Sweeney discloses a method of pumping because under the principles of inherency, if a prior art device, in its normal and usual operation, would necessarily perform the method claims, then the

method claimed will be considered to be anticipated by the prior art device. When the prior art device is the same as a device described in the specification for carrying out the claimed method, it can be assumed the device will inherently perform the claimed process. In re King, 801 F.2d 1324,231 MPEP 2112.02"

18. Claim 34 is rejected under 35 U.S.C 103(a) as being unpatentable over Warren in view of Danielsson and Sweeney as applied to claim 31 further in view of English (US patent number 3135210).

19. In re claim 34 Warren in view of Danielsson and Sweeney discloses the claimed invention except the following limitation which is taught by English:

- The pump is a centrifugal pump, in column 5, lines 43-45.

20. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the pumping system of Warren and Sweeney by choosing a centrifugal pump as taught by English as an obvious design choice or in order to generate higher pressure.

21. Claims 42-46 and 50-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sweeney in view of Danielsson.

22. In re claim 42, Sweeney discloses a pumping mechanism including:

- A piston type pumping apparatus configured for pumping a liquid, in figure 1-2 comprising: a vertically oriented cylinder (47) having a top and a bottom; a first passageway (column 3, lines 6-7 indicate that production fluid is discharged, entailing a passageway of some sort) for liquid in the vertically oriented cylinder (47), wherein the first passageway is adjacent to the top of the vertically oriented

cylinder (47); a second passageway (connecting stroke piston chamber 29 to cylinder 47) for hydraulic fluid in the vertically oriented cylinder (47), wherein the second passageway is adjacent to the bottom of the vertically oriented cylinder; a piston (38) reciprocatingly mounted within the vertically oriented cylinder (47), the piston (38) having a top surface configured to be in contact with liquid in the vertically oriented cylinder, the piston (38) further having a bottom surface configured to be in contact with the hydraulic fluid acting against the bottom surface of the piston in a direction of movement of the piston; a piston rod (11,24) connected to the piston (38) and extending slidably and sealingly through a first aperture (sealed by 20) in the bottom of the vertically oriented cylinder, wherein the piston rod (11,24) has a bottom surface; a reload chamber (42) situated below the vertically oriented cylinder (47), the piston rod (11) extending slidably and sealingly into the reload chamber (42) through a second aperture in the reload chamber (11), the piston rod (11) having a third passageway (that is the hollow passage) for liquid extending from the bottom surface of the piston rod to the top surface of the piston (38), such that the piston rod (11) connected to the piston is configured to permit passage of liquid there through, wherein the bottom surface of the piston rod is situated within the reload chamber, wherein the bottom surface of the piston rod is configured such that liquid in the reload chamber (42) acts upwardly against the bottom surface of the piston rod (being integral with 10) in a direction of movement of the -piston (38) and piston rod (11), whereby liquid in the vertically oriented cylinder acting downwardly on the top

surface of the piston exerts a greater force on the top surface of the piston than liquid in the reload chamber acting against the bottom surface of the piston rod; a first one-way valve (12) situated in the third passageway (that is the hollow passage inside 11) configured to permit liquid to flow from the reload chamber (42) into the piston rod (11) and piston (38) and which is configured to prevent liquid from flowing from the piston rod (11) and piston (38) into the reload chamber (42); a fourth passageway (4) configured for passage of liquid into the reload chamber from a source of liquid to be pumped; a second one-way valve (5) in the fourth passageway (4) configured to permit liquid to flow from the source of liquid into the reload chamber (42) and which is configured to prevent liquid from flowing from the reload chamber (42) towards the source of liquid to be pumped; and a receiver (40) in fluid communication with the second passageway (connecting stroke piston chamber 29 to cylinder 47), wherein the receiver (40) is configured for receiving the hydraulic fluid displaced as the piston (38) moves downwardly, and wherein the receiver (40) is configured to assist in raising the piston (28) to pump liquid upwardly and through the first passageway . Sweeney ,however fails to disclose the following limitation which is taught by Danielsson:

- The piston rod (9) further extending slidably and sealingly (via seal 18) in to a reload chamber (3) through a second aperture in the reload chamber (3), wherein the reload chamber (3) is situated below the vertically oriented cylinder (1), and

wherein the piston rod (9) has a bottom surface having a diameter smaller than an inside diameter of the reload chamber (3), in figure 1.

23. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the pumping system of Sweeney by making the first surface area larger than the surface opposite as taught by Danielsson in order to assist the plunger during the down stroke movement.

24. In re claim 43, Sweeney in view of Danielsson as applied to claim 42 discloses the claimed invention:

Sweeney discloses:

- The receiver (40) is configured to store the hydraulic fluid, in figure 1.

25. In re claim 44, Sweeney in view of Danielsson as applied to claim 42 discloses the claimed invention:

Sweeney discloses:

- A pump (30) connected to the receiver (40) and configured to assist in raising the piston (38), in figure 1.

26. In re claim 45, Sweeney in view of Danielsson as applied to claim 42 discloses the claimed invention:

Sweeney discloses:

- The pump (30) connected to the receiver (40) is a piston type pump, in figure 1.

27. In re claim 46, Sweeney in view of Danielsson as applied to claim 42 discloses the claimed invention:

Sweeney discloses:

- The pump (30) connected to the receiver (40) is situated above the second passageway (connecting stroke piston chamber 29 to cylinder 47), in figure 1.

28. In re claim 50, Sweeney in view of Danielsson as applied to claim 42 discloses the claimed invention:

Sweeney discloses:

- A system for pumping, in figure 1-2, the system comprising: a first chamber (26) having a top interior surface (at 25 in fig 7), a bottom interior surface (22), and interior side surfaces (cylinder walls 47); a piston and piston rod (24 generally) having a piston portion joined to a piston rod portion, wherein the piston portion (38) of the piston and piston rod component is disposed within the first chamber (26), the piston portion (38) having a first surface (28), wherein the first surface (28) is slidably disposed within the interior side surfaces (cylinder walls 47), wherein a piston rod portion (11) of the piston and piston rod component has a bottom portion (37) and a surface (43) opposite to the first surface (28) of the piston portion (38) of the piston and piston rod component, wherein the bottom portion (37) extends through a first aperture in a bottom of the first chamber (26), and wherein the piston and piston rod component has an aperture (15) extending from the first surface to the surface opposite and configured for passage of liquid therethrough; a first passageway (to 25) situated adjacent to the top interior surface of the first chamber and above the first surface; a second passageway (to 40) in the first chamber located below the first surface; a second chamber (40) configured to contain a pressurized liquid or a pressurized gas, in fluid

contact with the second passageway; a first one-way valve (12) disposed in the bottom portion (37) of the piston rod portion of the piston and piston rod component; a third chamber (42) having a second aperture (either its diameter as closed by 37 or as discussed below), the third chamber (42) comprising an interior side surface, wherein the bottom portion of the piston rod portion (11) of the piston and piston rod component is disposed within the second aperture, wherein a surface (43) of the bottom portion of the piston rod portion of the piston and piston rod component does not contact the interior side surface of the third chamber (42); and a second one-way valve (31) disposed within the second chamber.

Danielsson discloses.

- The first surface (which is top surface of piston 2) has a larger area than the surface opposite (which is the bottom surface of piston rod 9), in figure 1. See claim 42 above for obviousness.

29. In re claim 51, Sweeney in view of Danielsson as applied to claim 50 discloses the claimed invention:

Sweeney discloses:

- A pump (30) associated with the second chamber (40), in figure 1.

30. In re claim 52, Sweeney in view of Danielsson as applied to claim 51 discloses the claimed invention:

Sweeney discloses:

- The pump (30) is a piston-type pump, in figure 1.

31. Claims 47-49 are rejected under 35 U.S.C 103(a) as being unpatentable over Sweeney in view of Danielsson as applied to claim 42 further in view of English.

32. In re claim 47 Sweeney in view of Danielsson disclose the claimed invention except the following limitation which is taught by English:

- The pump is a centrifugal pump, in column 5, lines 43-45. See claim 34 above for obviousness.

33. In re claim 48 -49 it would have been obvious, in the process of modification, to provide a fifth passageway in the vertically oriented cylinder and a first conduit connecting the fifth passageway and a second conduit connecting the pump to the second passageway as appropriate conduit arrangements for the transportation of power fluid as taught by English'210. Further, the relative vertical orientation of the second and fifth passageways would be an obvious matter of design choice having no significant effect on the operation of the modified pump, thus it would have been obvious to provide the fifth passageway below the second passageway. Finally it would have been obvious to include a third one-way valve (as taught by any of the references, in particular English) adjacent to the fifth passageway in the second conduit in order to prevent backflow of power fluid from the receiver to the first chamber.

Response to Arguments

34. Applicant's arguments with respect to claims 1-52 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

35. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amene S. Bayou whose telephone number is 571-270-3214. The examiner can normally be reached on Monday-Thursday, 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on 571-272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For

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more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/
Supervisory Patent Examiner, Art
Unit 3746